
Book review

- Adam Ockelford, *Repetition in music: Theoretical and metatheoretical Perspectives*, Royal Musical Association monographs, No. 13. Aldershot: Ashgate Publishing Ltd., 2004. xiv+151 pp., ISBN 0-7546-3573-2 (hardback), £40.

Adam Ockelford's book presents an ambitious undertaking in bridging conventional music theory with cognitive psychology. It proposes a theory, or indeed metatheory, for repetition in music under the guise of a cognitivist paradigm.

The aims of the book are multifarious but unified by the overarching theoretical scope. The prime focus is the development of what Ockelford calls his "zygonic" hypothesis. This seeks to accommodate the role of repetition in perceived musical structure within a conceptual model operating between David Lewin's "musical spaces" and Gilles Fauconnier's "mental spaces" (Chapter 2). As implied by the term "zygonic", which refers to events that can be linked together and perceived as similar, the zygonic theory essentially aims to account for the creation and cognition of musical structure based on relationships of imitation and repetition. Following on from the theoretical exposition, the analytical part of the book attempts to demonstrate how zygonically structured forces influence the internal organisation of music. The analytical explorations also aim to account for the interaction between musical content and aesthetic response (Chapter 3). Furthermore, the zygonic model functions metatheoretically, striving to rehabilitate twentieth-century set theory and interval transformations, by resituating these within the new conceptual framework presented in the book (Chapter 4). Finally, the meta-analytical and metatheoretical findings are reviewed in light of putative cognitive constraints and preferences underlying the more pragmatic boundaries of this theory (Chapter 5).

The scope of the book is clearly broad enough to satisfy a range of scholarly appetites and its contents represent a development of the author's previous work already undertaken in this area. In fact, readers may benefit from familiarising themselves with earlier renditions of Ockelford's zygonic theory as the present book tends to lean heavily on them at times. Despite some inevitable overlap of material, this book invites careful reading and reflection on the array of issues it raises by choosing to occupy a niche at the interdisciplinary crossroads, and as the author himself is keen to point out "further potential avenues of analytical, theoretical, metatheoretical and empirical enquiry are set out" (p. xiv).

In the introduction Ockelford contextualises repetition as a ubiquitous phenomenon and a universal attribute of music underlying elements of its production and reception. Given music's predisposition towards universals, as a category of human endeavour, Ockelford raises the question as to whether different theories of music ultimately share common premises too: in effect, he sees the diversity in music-theoretical discourse as an enticing opportunity for metatheoretical exploration if not unification. This avenue of enquiry, according to Ockelford, can be pursued more purposefully through interdisciplinary approaches, which allow music-theoretical thinking to be profitably cross-fertilised. The introduction makes a straightforward enough exposition, although some of the broader issues it raises are worth returning to in light of the book as a whole.

Chapter 2 presents the theoretical premises of the *zygonic* hypothesis. Firstly, Ockelford exposes the limitations of David Lewin's notion of "musical spaces", especially the fact that these cannot accommodate the perceived attributes of sound, and proposes the alternative of situating the inter-modality of perception within conceptual spaces, in line with Gilles Fauconnier's thinking. Hence, Ockelford defines the operational terms "perspect" and "perspective domain", with the former denoting a particular qualitative experience and the latter referring to a set of values describing a perspect. Ockelford also justly identifies the limited capacity of Lewin's term "interval" for denoting perceived durations, especially the relationship between durations rather than the mere description of the temporal separation of events (a problem most pertinent in rhythmic theory, although Ockelford does not refer to this). Ockelford's alternative is the concept of "intersperspective relationships" and their "intersperspective values". Intersperspective relationships refer to purely mental constructs which function as "links" between perspects (*i.e.*, "link schemata", after George Lakoff), and connect values that "may have a direct physical stimulus, be recalled from memory, or exist in the imagination" (p. 16). While these flexibly assigned denotative values may suit the freedom of imaginative conceptualisations between perspects, adding to the explanatory possibilities the theory aims to supply, they may also be seen as a constraint on further empirical enquiry or verification (as suggested on p. xiv). This is, of course, symptomatic of the cognitivist paradigm more generally — on the one hand making it possible to embrace operational terms which explain how music can be understood indiscriminately, as a domain of cognitive structure, by everyone who engages with it, while on the other, such terms are discursive concepts and not exact scientific givens.

From these definitions Ockelford proceeds with laying out the *zygonic* theory, which is basically a theory for the cognition of musical structure. This proposes a hierarchically constructed conceptual network in which intersperspective relationships, operating either "reactively" or "proactively", link events perceived in the musical fabric, and are in turn connected to yield the higher-order relationships termed *zygonic*. The perception of order and repetition are considered to be essential for modelling perceived musical space conceptually in this way. As Ockelford suggests,

these zygonic relationships represent mental processes in response to the regularities of the musical material in a range of perceptual possibilities (*e.g.*, between pitches, timbres, dynamics, durations, tonal regions, as well as within the same and between different pieces, performances and hearings). Although Ockelford partly corroborates his suppositions by using evidence from psychological literature on listeners' expectations and cognitive processing, the zygonic networks described here remain largely abstract representations of what goes on conceptually. More definitions are given to illustrate further how these zygonic networks function in relation to the level of zygonic relationships they exhibit (primary, secondary or tertiary) and the type of interspersive values they connect. However, following these definitions is a little tricky, especially since the musical examples are to be found in the next chapter.

Although Ockelford acknowledges that the cognitive processing of structure, as represented by the zygonic model, inevitably encompasses only one aspect of the aesthetic response to music, he emphasises, nonetheless, its vital role in mediating such response. By equating musical content with perspective and interspersive values (*i.e.*, perceptual experience), he tries to account for the interaction between structure (*i.e.*, the underlying patterns of zygonic relationships) and aesthetic response in the context of the cognitive environment of the listener (pp. 31-32). Here, the cognitive environment comprises all those perceived attributes relevant and applicable to the cognition of structure. As we are told both in this chapter and later on, the cognition of musical structure predisposes perceptual awareness in listeners — such that zygonic modelling is facilitated with increased exposure to the music — and the flow of information from perception to cognition is predetermined by a hard-wired tendency for coherence based on similarity and sameness (this is made more explicit at the start of Chapter 5, p. 120). But this inevitably raises some scepticism about the nature of the aesthetic experience of music as Ockelford understands it. Essentially there is nothing unique in our aesthetic response to music, because it all comes down to one fundamental and universal tendency, the search for coherence and unity through repeated patterns.

The analytical part (Chapter 3) aims to provide further evidence for the zygonic theory by drawing primarily from music-analytical intuition. As Ockelford remarks, “the zygonic approach points the analytical mind in a certain direction – seeking structural features of any type that are founded on imitation – and provides a conceptual and schematic framework within which findings of potential interest can be captured and interrogated” (p. 35). Here, the application of the zygonic theory operates largely within the two axes of analytical enquiry stemming from Leonard B. Meyer: issues pertaining to the structural organisation of the individual piece (using the first movement of Mozart's Piano Sonata K. 333 as a case study), and consideration for the compositional “background” against which the individual features of a piece can be understood.

Ockelford sets out to demonstrate empirically how interspersive relationships act implicatively across stylistically similar pieces, and how these organise the

compositional “background” in terms of the imitation and repetition of various perspectives (*e.g.*, beat, metre, tempo, inter-onset ratios, pitch-sets, melodic intervals, harmony): as he says, “these are some examples of the ‘background’ organization to which the first movement of K. 333 is subject” (p. 48). The empirical data show the distribution patterns of repeated perspectives within and across pieces. However, it is not always clear how some of these results were obtained. For example, we are not told exactly *how* the inter-onset intervals were measured from different recordings of the first movement of K. 333, or *how* these values relate to tempo variations across performances (p. 38). Furthermore, and according to Ockelford, the statistical findings presented here are supposed to have a direct bearing on the zygonic organisation underpinning listeners’ expectations (p. 41). However, this claim — as the author himself acknowledges — is not fully explored in the present book (p. 41).

Ockelford goes on to ask how it is possible for composers such as Mozart to produce original pieces when so many different forms of “background” organisation (resulting from imitation) potentially become tight stylistic constraints. The answer, it would seem, lies in the fact that the “structure-bearing capacity of perspectives is immense, giving composers effectively limitless scope for creating new abstract patterns in sound” (p. 51). This solution, however, is offered here in the absence of a fully robust definition of style or an analytical study extending to many different pieces. After all, repetition in music is not merely an artefact of syntactical coherence, but more importantly an historical construct. Given that in this chapter the application of the zygonic theory is limited to the Mozart Sonata and some further comparison with J. C. Bach’s Piano Sonata Op. 5 No. 3, Ockelford’s claim is made more difficult to substantiate. Of course, this may be attributable to the fact that, as is often the case with theories, the theoretical prolegomena exceed actual application.

Ockelford proceeds to examine how specific zygonic relationships within the first four bars of K. 333 function in relation to the “background” of structural forces already identified for this piece. Subsequently he considers how the interplay between structure and content, as mediated by these zygonic connections, relates to the aesthetic value of the piece. Here, notions of aesthetic worth are inextricably linked with the perception of continuity, predictability and similarity between the constraints of the “background” organisation and the more individual features, or “foreground”, of the piece. The influence of Meyer is particularly evident in the way this background/foreground duality is explored in this context to account for musical comprehensibility. Effectively, Ockelford hypothesises that a prime function of the ubiquity of repetition, on account of the constraints it imposes through the “background”, is the reduction of information overload for cognitive processing.

Chapter 4 attempts to rehabilitate set- and transformational theory by applying the workings of the zygonic hypothesis. Ockelford’s meta-analytical refinements to certain procedures that utilise mathematical sets and transformations aim to highlight how these complex systems of analysis may in fact exhibit similarities in their conceptual architecture, and in doing so ascribe a metatheoretical function to

the zygonic model. Given the inevitable conflicts that exist between the deeper structural organisation of music (which these twentieth-century forms of analysis claim to reveal) and the perceptually more immediate surface, Ockelford's meta-analytical explorations further highlight this disparity between analysis, as a conceptual system of thought, and its relevance to perceptual reality. Stemming from the examples of set- and transformational theory, and how these present an overload of perceptually unmanageable information, Ockelford acknowledges that "our perception of structure is more constrained than our capacity to conceptualize it" (p. 116), and turns his attention to the role of preferences and constraints underlying our musical intuition.

In the final chapter Ockelford proposes a model to account for the varying roles of different types of interspective and zygonic relationships in the cognitive processing of music. The model distinguishes between relationships that function as perspectives during the normal listening process and those that can actually be realized as concepts in the act of analysis. Although behind every piece lie constraints which regulate perspective and interspective values, these operate slightly differently for the domains of perception and cognition. Thus, while certain relationships may not be of perceived structural significance to the listener, they may still be conceptualised by those more attuned with specific theoretical-analytical models. But as Ockelford himself recognises, at this stage, the actual boundaries distinguishing which relationships potentially become cognitively reified, as opposed to immediately perceived, are fuzzy in the absence of further empirical work to verify such assumptions.

Finally, I would like to conclude by interrogating some issues pertaining to the theory as a whole. Surely to acknowledge the abiding role of universals in music, and then to ask whether these are also reflected in theories of music (p. 3), is effectively to prejudge the epistemological premises of this enquiry. For Ockelford, these universals are delimited by the domains of human perception and cognition in accounting for the phenomenon of repetition and underlying the cognitive organisation of musical structure. However, by formulating a theory which "hypothesizes that the creation and cognition of musical structure derive from imitation (and repetition)" (p. 6), the distinction between epistemology and methodology is clouded: derivation (the universals of human perception and cognition predisposing musical understanding) and end-result (the explanation of musical diversity based on these universals) become inextricably entwined. Essentially what Ockelford's theory highlights is the perpetual problem of explaining music by combining two epistemologically contrasting disciplines, cognitive psychology with music theory. His approach, which is intended to explain music as a domain of cognitive structure, inevitably compromises what is unique, culturally contingent and meaningfully musical. After all, in explaining music *as music*, universal attributes are not solely music-defining but effectively become system-dependent as well.

This means that, although Ockelford is keen to stress the hybrid nature of his epistemology, in which “the individual musical intuitions that typify approaches to music theory and analysis are informed by the relevant thinking and findings appropriated from the domain of cognitive psychology” (p. 6), this position is imbued with the dangers of epistemological disjunction. At the music-theoretical level, what is being attempted here is the construction of a metatheory that aims to unify music-theoretical diversity. Whilst drawing from different disciplinary strands may at first glance appeal to more contemporary and dialogic theoretical consciousness, deep down this epistemology appears informed by an unstinting predilection for dialectical unity. Hence, the enduring and paradoxical quest for unity is manifested here in the form of a cognitivist paradigm striving to embrace diversity of all sorts (musical, theoretical, perceptual, cultural, *etc.*). In Ockelford’s theory, repetition provides both the basis for conceptualisation and the system for analysis, but repetition in music and our understanding of it is an historical construct and a culturally contingent phenomenon. Therefore, attempting to explain repetition in music solely in terms of cognitive comprehensibility would mean that certain compositional styles and musical genres will inevitably suffer while others will rise to the challenge more successfully. This, in fact, can already be detected from the analytical and meta-analytical findings presented in the book. For example, Mozart’s K. 333 fits more comfortably within the “background” of expectations, whereas an avant-garde composition presents more challenging “information overload” to be dealt at the meta-analytical level.

Of course, as Ockelford himself points out, he wants a theory that enables us to understand how music makes sense in general terms, and clearly the ubiquity of repetition and universality of perception and cognition serve this generality very well. But it is rather perplexing when he says, “in terms of understanding how music makes sense in general terms [...] we would need to know how the majority of people respond to the organization inherent in a large number of pieces of music heard in a wide variety of situations” (p. 19), because from this he seems to imply a theory that formalises the role of repetition with the epistemological impulse running from the specific to the general. However, in its current rendition, the theory’s logic and applicability appear to run in the opposite direction, from the general (the ubiquity of repetition and universals of perception/cognition) to the specific (individual pieces). This book does set out challenging new avenues for further exploration, and we shall have to watch this space eagerly while research in a variety of contexts consolidates the model’s broad-based applicability.

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